

Alphabetical revision of the (sub)species in recent Conidae
1. abbas to adansonii

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INTRODUCTION

Conidae always have received special attention of malacologists and shell collectors because of their variability and beauty. A large number of species was described and many publications were written about this family. During the 19th century the family was summarized in the well-known handbooks by Lamarck (1822), Küster (1837-1838), Reeve (1843-1849), Kiener (1846-1850), Sowerby II & III (1857-1866 & 1887), Weinkauff (1875), and Tryon (1884). Alphabetical lists of taxa described in the Conidae were published by Weinkauff (1874), Tomlin (1937), and Wagner & Abbott (1978). Kohn (1963-1976) published a chronological revision of the Conidae, described between 1758 and 1800. He intends to continue this series up to the species described in 1840. Marsh (1964) wrote a book about Conidae with colour illustrations. Kaicher (1976-1977) published packs of cards with black and white photographs of *Conus* species. A colour illustrated work by Walls is due to appear in 1979.

Except for these publications Conidae have been studied by many other malacologists. Nevertheless, the taxonomy of this family is still far from being settled. This is due to the following factors: the large number of species (about 500 recent), the variability in colour and design, the abundance of (sub)specific names (over 2000 recent and fossil), the homonymy and synonymy, the incorrect type localities, and the unknown distribution patterns. For these reasons a revision of the Conidae is very difficult, as was already

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stated by Kohn (1976a).

The Zoological Museum at Amsterdam has some tradition in Conidae, as the first publication on the mollusc collection was entitled "Catalogue des coquilles de la famille des Conidés" by the curator Oltmans (1869). It contained the names of 227 species and many varieties. The collection of Conidae has grown in number of species and lots since that date. The type specimens, collected by the Siboga Expedition to the Indonesian Archipelago, 1899-1900, and described by Schepman (1912), are present in the Zoological Museum. Later curators, Van Benthem Jutting (1938, 1949, 1958, 1965) and Coomans (1963, 1973), also were interested in Conidae. The *Conus* collection of the Zoological Museum was studied by Maier (MS 1969), under supervision of Coomans, for his master's degree. Wils (1969-1974) published on Conidae with his fellow members of the study group "Xenophora", and with Bandel (1977).

The authors are using the original descriptions of the Conidae as a basis for this series of publications, and the *Conus* collection of the Zoological Museum at Amsterdam (= ZMA) for comparison. Additional material was studied in the Rijksmuseum van Natuurlijke Historie at Leiden (= RMNH), and from private collections in Belgium and the Netherlands. Wils studied the type specimens of *Conus* in the British Museum (Natural History) (= BMNH), London, and the Conidae of the Dautzenberg collection in the Koninklijk Belgisch Instituut voor Natuurwetenschappen (= IRScNB) at Brussels. Moolenbeek studied the type material of Conidae in the Muséum National d'Histoire Naturelle (= MNHN) at Paris.

As malacologists do not have a uniform system for the taxonomy of (sub)genera in Conidae, the authors prefer to use the genus name *Conus* for all species. For pragmatic reasons these will be discussed in alphabetical order. The authors hope to be able to submit a systematic revision at the end of the series. For each name in the Conidae an opinion on the validity and status of the species will be given. Nomina nuda, misspelled names, and misidentifications of Conidae in literature are generally not taken into consideration. Valid names are printed in heavy type in the alphabetical list.

As far as possible all species will be illustrated. The specimens figured are present in ZMA, unless otherwise stated. Distribution maps will be supplied on which the localities of specimens studied are marked ▲, and trustworthy localities from recent literature △.

Every article in this series will have its own list of references; general works on Conidae are mentioned in the first instalment only.

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GENUS CONUS LINNÉ, 1758

abbas

figs. 1, 7-8

Conus abbas Hwass in Bruguière, 1792, Encycl. Méth.: 750, no. 144

Type.— Since no type specimen was present, Kohn (1968: 435-436) has selected a neotype from the Lamarck collection in the Musée d'Histoire Naturelle at Geneva. This specimen was also figured by Kiener (1850, pl. 86, fig. 1), dimensions 60.5 x 33 mm.

Type locality.— "mers des grandes Indes".

Distribution.— This species is known from Ceylon and the southern coast of India (fig. 1).

ZMA has specimens from Ceylon (figs. 7-8). The collections of RMNH and ZMA have specimens from old collections with localities from the island of Java (Wijnkoops Bay, Patjitan, Tjilatjap, and Djakarta Bay). As long as no definite recent collecting can verify these Javanese localities, we consider them as doubtful.

Remarks.— *Conus abbas* is a valid species, being related to *C. archiepiscopus* Hwass, 1792. The shells of these two species can be distinguished, as *C. abbas* has almost straight sides, a fine and regular network, and the inside of the aperture white. *C. archiepiscopus* has the last whorl more bulbous, with larger tent marks, and a pink aperture; it is found in Indonesia.

abbotti

figs. 2, 9

Conus regius abbotti Clench, 1942, Johnsonia 1 (6): 6, pl. 4, figs. 2, 3

Type.— In the Museum of Comparative Zoology, Cambridge, USA, dimensions 42 x 25.3 mm (fig. 9).

Type locality.— "Arthurstown, Cat Island, Bahamas".

Distribution.— As far as known restricted to the Bahamas (fig. 2).

No specimens in ZMA.

Remarks.— Dr. K.J. Boss (MCZ) permitted us to study and figure the holotype of *Conus abbotti*. This specimen has a less strong and lighter shell than *C. regius* Gmelin, 1791; the inside of the aperture is light purple; the spire is less concave and without spiral grooves (fig. 9b). The inside of the aperture of *C. regius* is whitish; the whorls of the spire always have about 8-10 grooves.

We therefore conclude that *Conus abbotti* is a distinct and valid species.

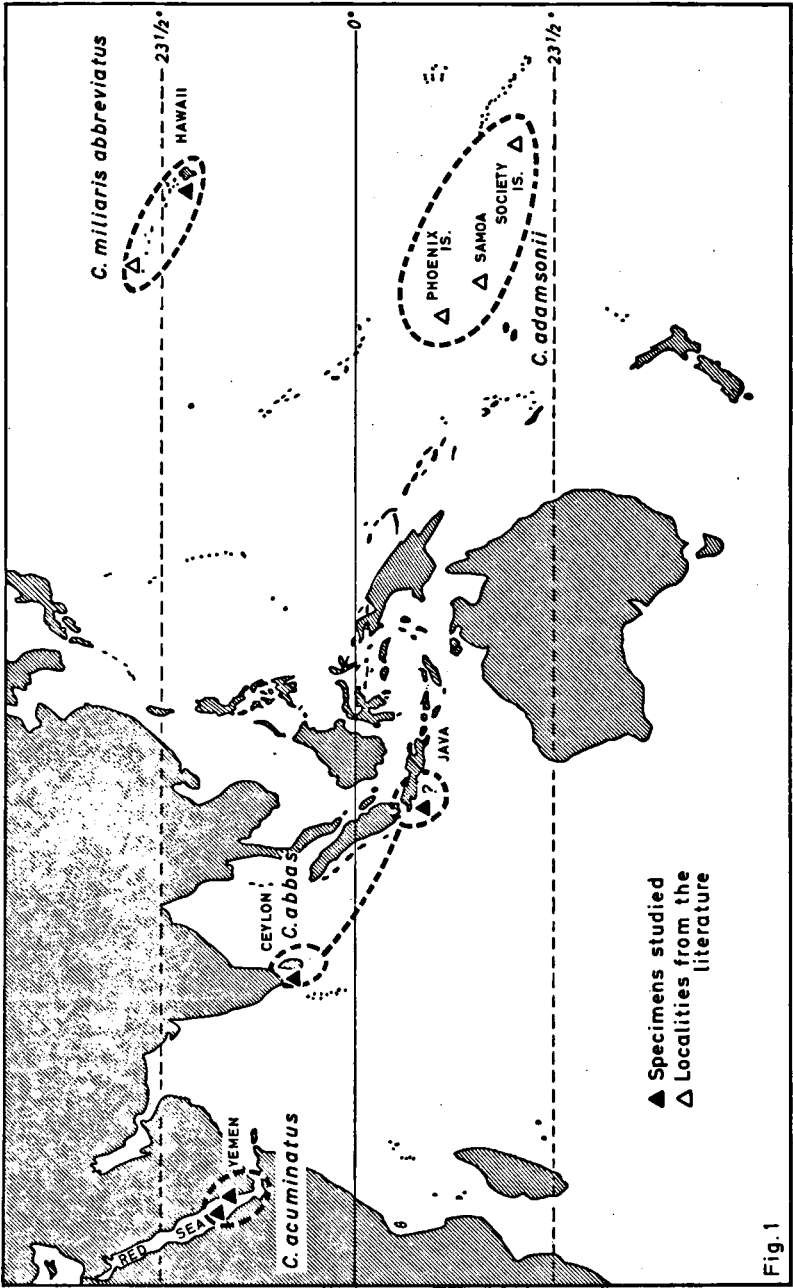


Fig. 1. Distribution of *Conus abbas*, *C. miliaris abbreviatus*, *C. acuminatus*, and *C. adamsonii*.

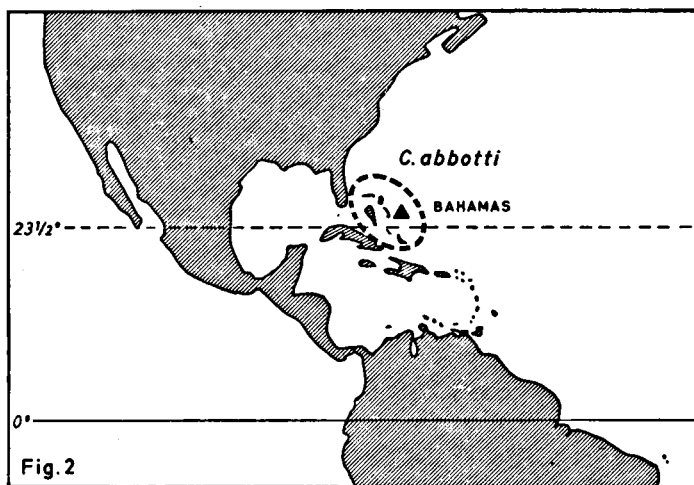


Fig. 2. Distribution of *Conus abbotti*.

abbreviata

Conus textile Linné, 1758 var. *abbreviata* (nom. nov.) Dautzenberg, 1937,
Mém. Mus. r. Hist. nat. Belg. hors série 2 (18): 255-257

Remarks.— Dautzenberg's *abbreviata* is a new name for *Conus vicarius* Lamarck, 1810 non Linné, 1767. He considered it a variety of *C. textile*, as was done by many authors (see synonymy in Dautzenberg). However, we agree with Lamarck (1810: 275) "Ce cône ressemble par la taille et la forme au cône amiral", that his *vicarius* is only a form of *C. ammiralis* Linné, 1758.

The name *Conus abbreviatus* was used earlier by Reeve (1843), which makes *abbreviata* Dautzenberg a homonym.

abbreviatus

figs. 1, 10

Conus abbreviatus Reeve, 1843, Conch. Icon. 1, Conus, pl. 16, spec. 86

Type.— Three syntypes are present in BMNH, dimensions 34 x 22, 36 x 23.5, and 38 x 25 mm. The first specimen agrees with the description and figure in Reeve, it is designated here as lectotype.

Type locality.— "Wahoo, Sandwich Islands" (= Hawaii).

Distribution.— *C. abbreviatus* is endemic to the Hawaiian and Midway Islands (fig. 1).

ZMA and RMNH have specimens from Hawaii.

Remarks.— *C. abbreviatus* belongs to the species complex of *C. miliaris* Hwass, 1792. Other species in this complex are *C. encaustus* Kiener, 1846, *C. fulgetrum* Sowerby I, 1843, and *C. tiaratus* Sowerby II, 1883. According to Reeve (1843) *abbreviatus* "may be recognized by the neat arrangement of the dark brown dots" (fig. 10).

On account of its distribution we prefer to give *abbreviatus* subspecific rank: *Conus miliaris abbreviatus*.

achatinus

figs. 3, 11-13

Conus achatinus Gmelin, 1791, Syst. Nat. 13 ed.: 3386, no. 25

Type.— No type specimen is available, as usual with the species described by Gmelin. Some references in Gmelin are not *C. achatinus*, they belong to *C. monachus* Linné, 1758. Kohn (1966: 76-77) designated a lectotype for *C. achatinus*, i.e. the specimen of pl. 142, fig. 1317 in Chemnitz (1788). This measures 80 x 45 mm, which is rather bulbous for the species. Although bulbous specimens are occasionally found (fig. 11), *C. achatinus* usually has a more slender shell (fig. 12).

Type locality.— "Oceano americano". This is not correct, as *C. achatinus* is an Indo-Pacific species. Since Indonesia is the centre of its distribution, the island of Java is selected herewith as type locality.

Distribution.— From the Persian Gulf to the western Pacific, Philippines to North-West Australia (fig. 3); recently also recorded from Madagascar and Mozambique.

ZMA has specimens from India (Bombay), Ceylon, West Thailand, Indonesia, New Guinea, Philippines, and North Australia; RMNH also has one specimen from the Persian Gulf.

Remarks.— In some specimens the spiral rows of dots on the last whorl merge into spiral lines (fig. 13).

Sometimes *C. achatinus* is considered a junior synonym of *C. monachus*. They can be separated from each other, as *C. monachus* is smaller (50 mm), and without the spiral rows of dark spots. *C. achatinus* may reach a size of 80 mm, the largest in ZMA is 74.3 mm.

Conus ranunculus Hwass, 1792 must be considered a granulated form of *C. achatinus*. ZMA has specimens from localities in New Guinea and the Moluccas (Coomans, 1973: 321).

aculeiformis

figs. 4, 14-15

Conus aculeiformis Reeve, 1843, Proc. zool. Soc. Lond. 11: 176; Conch. Icon. 1 (1844),
Conus, pl. 44, spec. 240b

Type.— Reeve (1844) figured two specimens, one (240a) from the Belcher collection,

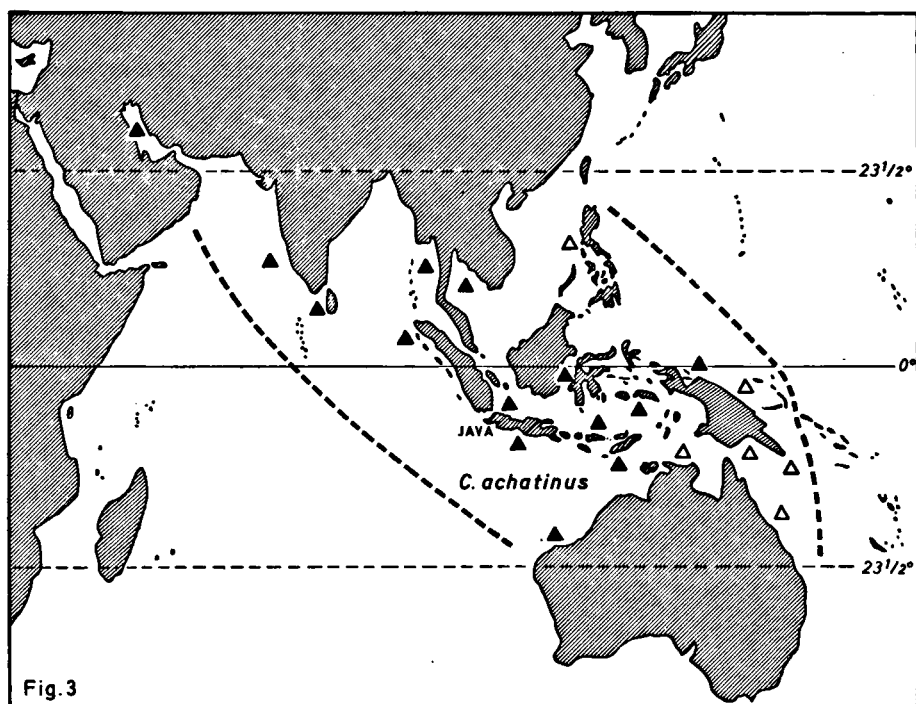


Fig. 3. Distribution of *Conus achatinus*; also known from Madagascar and Mozambique.

the other (240b) from the Stainforth collection. They represent two distinct species. In BMNH the specimen from the Belcher collection is not present, therefore we designate the specimen from the Stainforth collection as lectotype. It measures 38 x 15 mm (fig. 14).

Type locality.—Reeve stated: "Cagayan, island of Mindanao, Philippines (dredged from sandy mud at the depth of from twenty-five to thirty fathoms); Cuming. The specimens collected by Mr. Cuming at the above-mentioned island are mostly smaller than those here figured". From this statement it is obvious that the specimens figured in Reeve have no locality. Since we have no proof that the specimens collected by Cuming are conspecific with the lectotype of *C. aculeiformis*, we have to conclude that there is no type locality known for this species. When more data become available about the distribution, a type locality may be selected.

Distribution.—This uncommon species is known from a few localities in the Gulf of Bengal (fig. 15) and Indonesia, and is perhaps also living in the Philippines. After finishing the distribution map (fig. 4), Mr. H.K. Mienis (Hebrew Univ. Jerusalem) sent us a specimen on loan, dredged at Um es Sarig, Ethiopia, Red Sea.

In ZMA there are specimens from India and Indonesia.

Remarks.—*C. aculeiformis* is often confused with *C. longurionis* Kiener, 1849, *C. vimineus* Reeve, 1849 and other turreted Conidae.

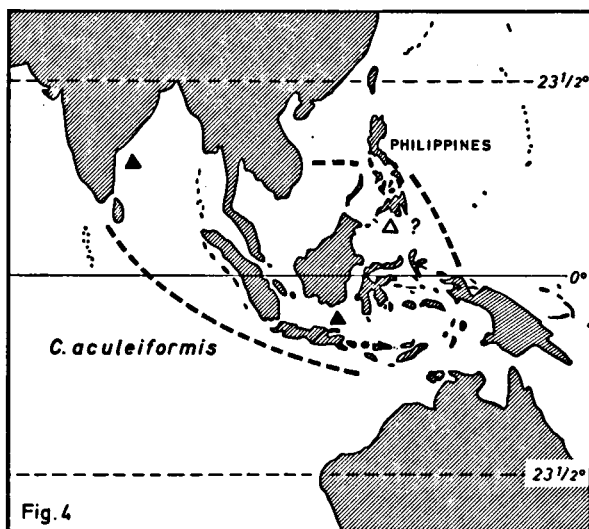


Fig. 4. Distribution of *Conus aculeiformis*; also known from the Red Sea (see text).

acuminata

Conus (Chelyconus) mediterraneus Bruguière var. *acuminata* "Stallio" Coen, 1933,
R. Comit. Talassogr. Ital. 192: 70

Remarks.— Coen (1933) mentioned this name without giving a description, reference or figure. The specimen(s), collected in the Adriatic Sea, are present in the Museum of Venice.

It must be considered a nomen nudum, and it is a homonym of the following species.

acuminatus

figs. 1, 19-23

Conus acuminatus Hwass in Bruguière, 1792, Encycl. Méth.: 688-689, no. 77

Type.— There is no type specimen in the Hwass collection in the Musée d'Histoire Naturelle in Geneva. Kohn (1968: 437) did not select a type specimen. From the references of Hwass especially the figure in Chemnitz (1788: 38, pl. 140, fig. 1297) is representative for *C. acuminatus*, whereas Chemnitz's name "Vice-Admiral aus dem rothen Meere", his description and locality (rothen Meere = Red Sea) evidently indicate this species. Therefore the authors herewith designate this figure as lectotype for *C. acuminatus*; it is reproduced here as fig. 19.

Type locality.—Hwass mentioned as locality "les mers des grandes Indes, et principalement à Amboine et aux isles Moluques". Tomlin (1937: 207) referred as type locality to "Mers des grandes Indes", whereas Kohn (1968: 437) wrote "Amboina, Moluccas (probably erroneous)". Hwass' locality was based on Rumphius' book on the molluscs of Amboina (1705), however, not all the shells described by Rumphius were found on that Indonesian island. Shells from the West Indies and West Africa were also included (like *Conus ermineus*, *C. genuanus*, and *C. granulatus*). *C. acuminatus* also is one of the species which is not from the Moluccas. This explains Rumphius' statement about the "Vice Admiraal" (1705: 108, pl. 34, fig. F) that the species is extremely rare.

Since Hwass' incorrect distribution cannot be considered as type locality for *C. acuminatus*, the authors designate the Red Sea coast of North Yemen to be type locality for this species.

Distribution.—*C. acuminatus* is endemic in the southern part of the Red Sea (fig. 1).

ZMA has specimens from the Dahlak Archipelago and N. Yemen. Although *C. acuminatus* has a limited distribution, the pattern on the last whorl of the shell is rather variable (figs. 20-23). Hwass knew of this variability, as he mentioned three varieties (A, B, and C) of this species.

Remarks.—Kohn (1968: 437) placed *C. acuminatus* Hwass, 1792, in the synonymy of *C. locumtenens* Blumenbach, 1791. Walls (1977) doubted if *C. locumtenens* is a valid species, as the lectotype was not designated according to the rules of the I.C.Z.N. However, this controversy is not of importance, since the name *Conus locumtenens* should be declared a nomen oblitum (Wagner & Abbott, 1978: 25-021) and added to the list of rejected names. The species has been known as *Conus acuminatus* for almost two centuries, whereas *C. locumtenens* was not used.

acutangulus

figs. 5, 16-18

Conus acutangulus Lamarck, 1810, Annls Mus. Hist. nat. Paris 15: 286, no. 121

Type.—Since Lamarck did not have this species in his collection (Mermoud, 1947: 164), he referred to Chemnitz (1795: 59, pl. 182, figs. 1772, 1773), which means that these figures of the one specimen should be considered the type. It is reproduced here (fig. 16) and measures 25 x 10 mm. Unfortunately, this type does not agree with what is generally known to be *C. acutangulus*. The figures of the type show a pale coloured, rather slender shell without granulations on the spire. It resembles *C. spirogloxus* Deshayes, 1863 (which is considered a juvenile of *C. generalis* Linné, 1767).

However, for the sake of stability of nomenclature we propose to maintain the long-established name *C. acutangulus* Lamarck, 1810, for the species described and figured by Kiener (1847: 155-156, pl. 72, fig. 1). These two specimens are still present in the Muséum National d'Histoire Naturelle, Paris.

Type locality.—"mers des grandes Indes".

Chemnitz stated that his specimen was found at Ceylon, which should be more accurate as type locality, than the large area mentioned by Lamarck.

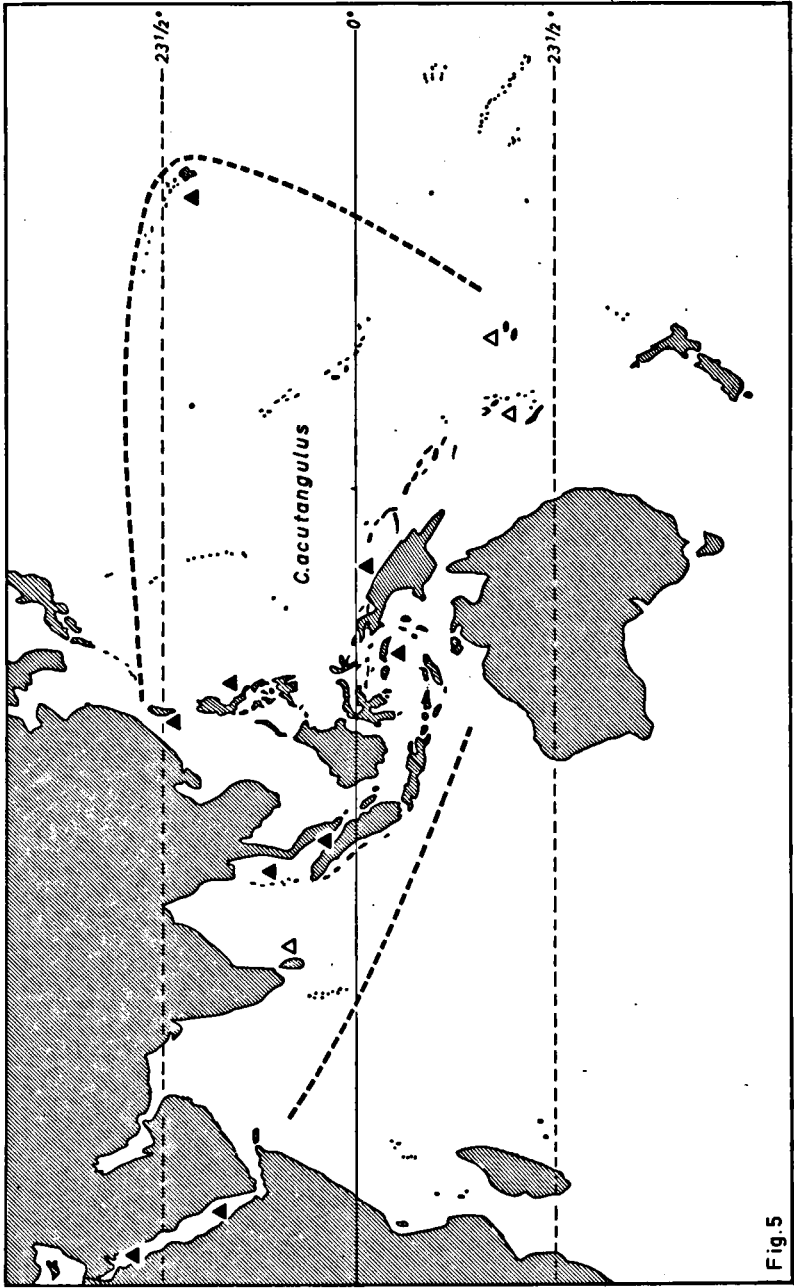


Fig. 5. Distribution of *Conus acutangulus*.

Distribution.— The species has a wide range in the Indo-Pacific (fig. 5).

ZMA has specimens from localities in the Red Sea and in Indonesia (figs. 17-18).

acutimarginatus

Conus acutimarginatus Sowerby II, 1866, Thes. Conch. 3: 328, spec. 432, pl. 27, figs. 640, 641

Type.— The holotype is present in the BMNH, dimensions 20.5 x 10.5 mm.

Type locality.— Sowerby did not mention a locality in his description, the specimen was from the Taylor collection. However, on the label of the type specimen is written "Florida, Mrs. Tombe Taylor"; this locality might have been added after Sowerby made his description.

Remarks.— After studying the type specimen, we must conclude that *C. acutimarginatus* is a junior synonym of *C. jaspideus* Gmelin, 1791.

acutus

Conus acutus Sowerby II, 1857, Thes. Conch. 3: 16, spec. 119, pl. 6, fig. 142
(non *Conus acutus* Anton, 1839, a fossil; non *Conus acutus* Deshayes, 1865, a fossil)

Type.— No type specimen in BMNH.

Type locality.— "Ceylon".

Remarks.— According to Sowerby's opinion *acutus* "may be but an irregular form of *C. ceylanensis*". Wagner & Abbott (1978: 25-023) consider it a form of *C. musicus* Hwass, 1792.

The name *Conus acutus* Sowerby II, 1857 is not valid as it was preoccupied by Anton.

To establish a new name for *C. acutus* Sowerby is not necessary, as it must be considered a nomen dubium (absence of a type specimen, a doubtful opinion of the original author and unidentifiable from description and figure).

adamsonii

figs. 1, 24

Conus adamsonii Broderip, 1836, Proc. zool. Soc. Lond. 4: 44

Type.— The type specimen was originally in the Adamson Museum, later in the Tomlin collection, which collection is presently in the National Museum of Wales, Cardiff.

Type locality.— Not given. Designated herewith: American Samoa (see below).

Synonymy.— *Conus cingulatus* Sowerby I, 1825 (non *C. cingulatus* Lamarck, 1810).

Conus rhododendron Jay, 1839. Jay (1839: 121) and later authors, like Mermod (1947: 204) mentioned Couthouy as the author for *C. rhododendron*. This species should have been described in the "Annals of the Lyceum Nat.Hist.Mass.". A search by W.E. Old

(in litt.) in the extensive library of the American Museum of Natural History (New York) to trace this journal and the description by Couthouy, did not have any result, and it should be concluded that Jay is the original author for this species.

Distribution.— Exact locality data of *C. adamsonii* are very scarce. *C. cingulatus* Sowerby I has no type locality, Jay (1839: 121) mentioned *C. rhododendron* from "Seas of Australasia". In the monograph of Reeve (1843, pl. 4, spec. 22) "Australia" is indicated, Tryon (1884: 86) mentioned "Australia, New Guinea, Polynesia". In recent literature correct localities are given. Marsh (1964: 116, pl. 16, fig. 7) figured a specimen from the Phoenix Islands. Salvat & Rives (1975: 356) mentioned the Society Islands. Purtymun (1977) collected two specimens at American Samoa. Therefore the Central Pacific (fig. 1) can be considered the range for *C. adamsonii*, as was also reported by Wagner & Abbott (1978: 25-010).

Based on the publication by Purtymun (1977) we designate American Samoa as type locality.

ZMA has one specimen (fig. 24) from "Australia".

adansonii

figs. 6, 25

Conus adansonii Lamarck, 1810, Annl. Mus. Hist. nat. Paris 15: 424, no. 133

Type.— No type specimen present (see remarks). The figure of "le Chotin" in Adanson (1757: pl. 6, fig. 6) is designated here to be lectotype of *C. adansonii*; it is reproduced in fig. 25.

Type locality.— "les mers du Sénégal".

Distribution.— The coast of Senegal (fig. 6).

ZMA has specimens from Dakar and Pointe Almadies.

Remarks.— According to Mermod (1947: 164) Lamarck possessed two specimens, one of which should be in the collection of the Musée d'Histoire Naturelle at Geneva; Mermod suggested that it was the type specimen. Dr. Vaucher kindly sent us colour pictures of this specimen; it agrees with the figure in Kiener (1849, pl. 61, fig. 4) of *C. unicolor* Sowerby. However, that specimen is a juvenile of *C. magus* Linné, 1758 from the Indo-Pacific, and not conspecific with the West African *C. adansonii*. As Kiener was confused about the names and figures of *C. adamsonii* and *C. adansonii* (cf. Tomlin, 1937: 208), he might have figured the wrong specimen for *C. adansonii*. Mermod (1947: 164) also stated that the illustration of *C. unicolor* in Kiener is different from the specimen figured by Adanson. For these reasons we cannot accept Kiener's figure of *C. unicolor* to be Lamarck's *C. adansonii*.

In his description Lamarck cited two figures which should represent *C. adansonii*. One, from the Encycl. Méth. pl. 343, fig. 7, was also used by Hwass to represent var. B of *Conus jamaicensis* Hwass. 1792. The other is the shell called "le Chotin" by Adanson (1757: 95, pl. 6, fig. 6) from Senegal. Fischer-Piette (1942: 197-198, pl. 4, fig. 12) has rediscovered and studied the collection of Adanson; he found 5 specimens of *C. adansonii*. However, none of these five is identical to the specimen figured by Adanson. The figure of "le Chotin" in Adanson is recognizable as a *Conus* still living at the coast of Senegal,

and we designate it to be the lectotype of *C. adansonii* (fig. 25).

Most authors, like Fischer-Piette (1942) and Wagner & Abbott (1978: 25-010), consider *C. adansonii* a variety or synonym of *C. mediterraneus* Hwass, 1792. Recent studies of Bandel & Wils (1977: 43) proved that the range of *C. mediterraneus* is limited to the Mediterranean Sea; the closely related *C. guinaicus* Hwass, 1792 is a Lusitanic species (North-West Africa and Canary Islands). The design on the last whorl of *C. guinaicus* is very variable (Saunders, 1978), generally with a flame pattern. Saunders kindly permitted us to study the unknown *Conus* spec. from Dakar, which were figured in his publication. Together with other material from Senegal, we have to conclude that these specimens are conspecific with *C. adansonii*, which is characterized by many punctulate spiral rows, and a more slender shape, but otherwise cannot be separated from *C. guinaicus*. Therefore it is concluded to be a form only: *Conus guinaicus* forma *adansonii*. The shells are commonly found at the coast of Senegal.

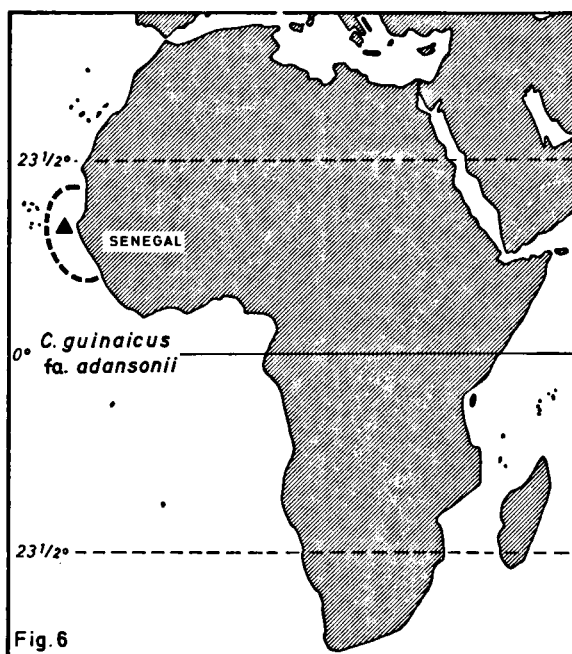


Fig. 6. Distribution of *Conus guinaicus* forma *adansonii*.

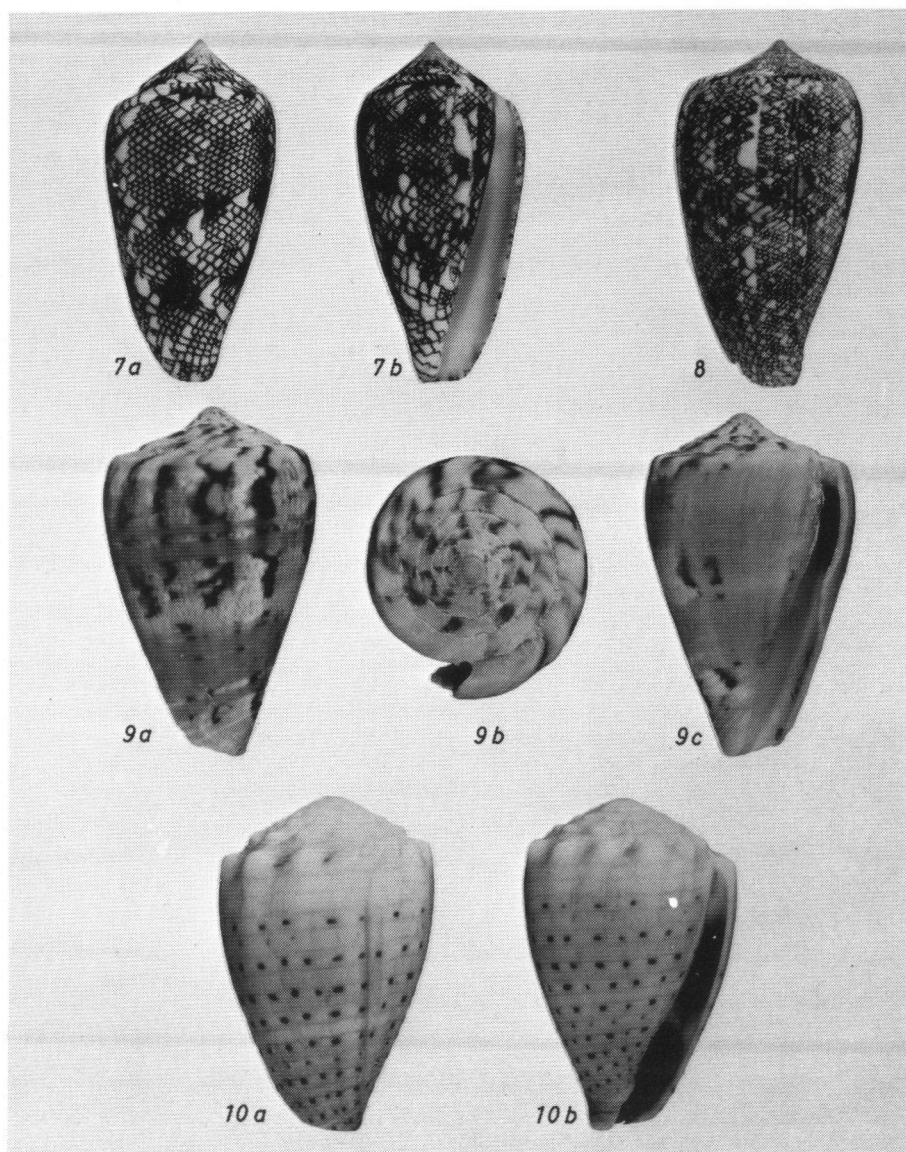
SUMMARY

Based on the original descriptions and on the *Conus* collection of the Zoological Museum at Amsterdam, the (sub)specific names in the recent Conidae are revised. Illustrations and distribution maps are supplied. In this issue the following names are discussed:

- C. abbas* Hw. — valid species — Ceylon, S.India.
C. abbotti Clench — valid species — Bahamas.
C. abbreviata Dautz. — homonym, a colour form of *C. ammiralis* L.
C. abbreviatus Rve — subspecies of *C. miliaris* Hw., lectotype designated — Hawaiian Is.
C. achatinus Gmel. — valid species — Indo-Pacific, Java designated type locality.
C. aculeiformis Rve — valid species, lectotype designated — Indonesia and Gulf of Bengal.
C. acuminata Coen — nomen nudum.
C. acuminatus Hw. — valid species, lectotype designated — S. Red Sea, coast of N. Yemen designated type locality.
C. acutangulus Lam. — valid species — Indo-Pacific.
C. acutimarginatus Sow. — synonym of *C. jaspideus* Gmel.
C. acutus Sow. — nomen dubium, preoccupied.
C. adamsonii Brod. — valid species — Central Pacific, American Samoa designated type locality.
C. adansonii Lam. — form of *C. guinaicus* Hw., lectotype designated — Senegal.

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Figs. 7-8. *Conus abbas* Hw., Ceylon, Hikkaduwa. 7. Length 43.5 mm. 8. Length 66.4 mm.
Fig. 9. *C. abbotti* Clench, holotype, Bahamas, Cat Island, length 42.1 mm (coll. MCZ, no. 145274)
Fig. 10. *C. miliaris abbreviatus* Rve, Hawaii, length 26.3 mm.

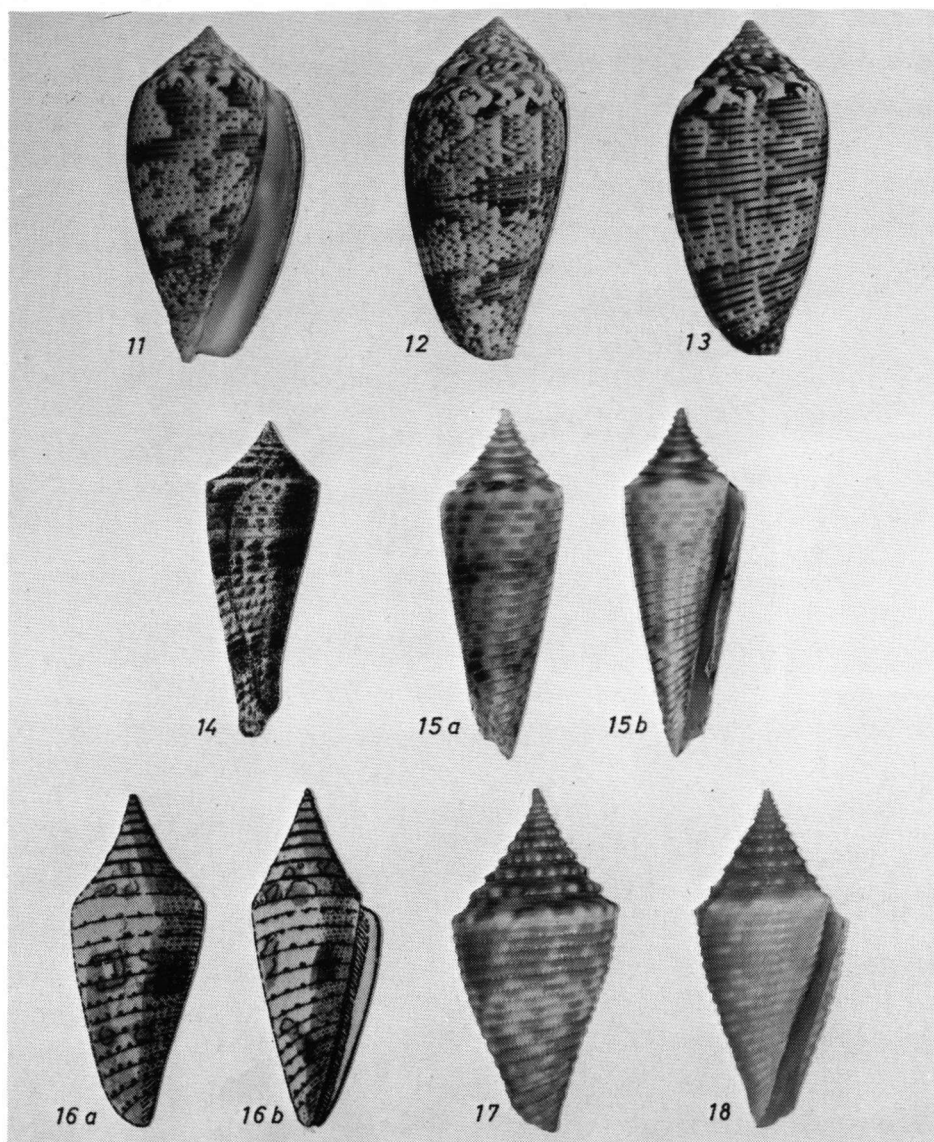
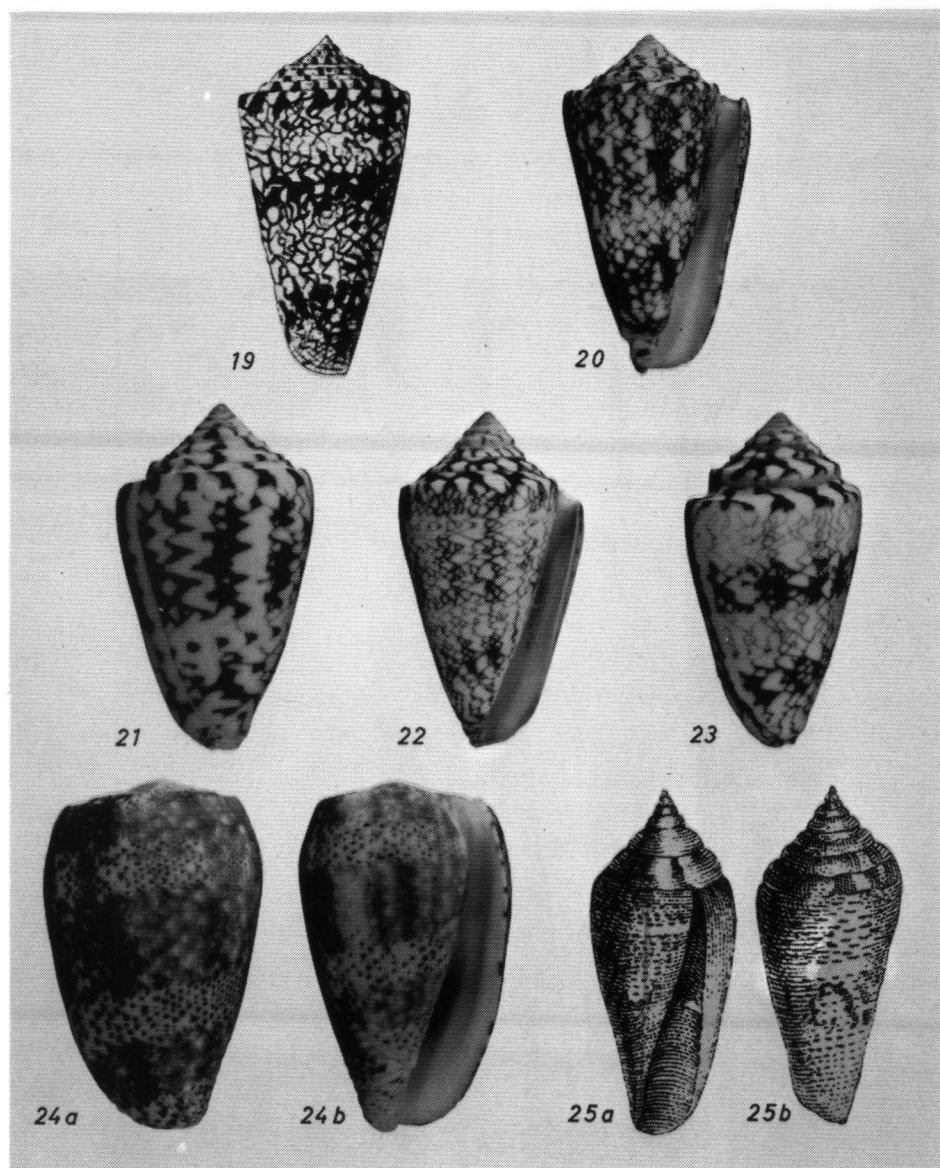


Fig. 11-13. *Conus achatinus* Gmel., Moluccas, length 53.4, 62.9 and 42.1 mm respectively.
 Figs. 14-15. *C. aculeiformis* Rve. 14. Lectotype (after Reeve), length 38 mm. 15. India, off Madras, length 28.7 mm (coll. Saesen).
 Figs. 16-18. *C. acutangulus* Lam. 16. Type figure (after Chemnitz), length 25 mm. 17-18. Moluccas, length 22.1 and 22.9 mm.



Figs. 19-23. *Conus acuminatus* Hw., Red Sea. 19. Lectotype (after Chemnitz), length 48 mm. 20-23 Variability of design, length 43.3, 37.1, 41.7 and 41.2 mm.

Fig. 24. *C. adamsonii* Brod., length 43.3 mm.

Fig. 25. *C. guinaicus* fa. *adansonii* Lam., lectotype (after Adanson), Senegal, length 33 mm.